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NON-CULPRIT CORONARY PLAQUE CHARACTERISTICS OF CHRONIC KIDNEY DISEASE

Poster Contributions

Poster Sessions, Expo North

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Session Title: Complex Patients, Diabetes and Renal Insufficiency

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Authors: *Koji Kato, Taishi Yonetsu, Haibo Jia, Farhad Abtahian, Rocco Vergallo, Soo-Joong Kim, Hang Lee, Iris McNulty, Stephen Lee, Shiro Uemura, Yang Soo Jang, Seung-Jung Park, Kyoichi Mizuno, Bo Yu, Ik-Kyung Jang, Cardiology Division, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA*

Background: Chronic kidney disease (CKD) promotes the development of atherosclerosis and increases the risk of cardiovascular disease. The aim of the present study was to compare coronary plaque characteristics with and without CKD by Optical Coherence Tomography (OCT).

Methods: From the MGH OCT Registry, 463 non-culprit plaques from 287 patients were identified. CKD was defined as estimated glomerular filtration rate (eGFR) < 60ml/min/1.73m².

Results: 402 plaques (250 patients) were in the non-CKD group, 61 plaques (37 patients) were in the CKD group. Compared to non-CKD plaques, plaques with CKD had a wider lipid arc (156.7±34.6 vs. 172.9±37.9) and a larger lipid index (mean lipid arc × lipid length, 1248.4±782.8 vs. 1716.1±1116.2). Fibrous cap thickness was not significantly different between the groups. Calcification (34.8% vs. 50.8%, p=0.022), cholesterol crystals (11.2% vs. 23.0%, p=0.021), and plaque disruption (5.5% vs. 13.1%, p=0.044) were more frequently observed in the CKD group. In multivariate linear regression analysis, a lower eGFR, acute coronary syndrome, and diabetes mellitus were independent risk factors for a larger lipid index (Table).

Conclusions: Compared to non-CKD patients, the patients with CKD had a larger lipid index with a higher prevalence of calcium, cholesterol crystals and plaque disruption. Multivariate linear regression analysis demonstrated that a lower eGFR was an independent risk factor for a larger lipid index.

	Univariate analysis		Multivariate analysis	
	β Coefficient	p-value	β Coefficient	p-value
eGFR	-2.4	0.273	-7.0	0.010*
Age	-6.9	0.089	-6.3	0.226
ACS	415.6	<0.001*	348.8	0.010*
Hypertension	106.0	0.302	175.2	0.079
Hyperlipidemia	83.5	0.545	208.1	0.060
Smoking	166.7	0.141	46.0	0.677
Diabetes Mellitus	443.2	<0.001*	427.0	<0.001*
LVEF	-4.1	0.484	-5.5	0.288
Hb	-5.4	0.894	-7.0	0.810
LDL-C	-0.5	0.646	-1.0	0.313
HDL-C	-4.3	0.183	-0.1	0.978
Triglyceride	0.4	0.348	0.1	0.770
CRP	18.5	0.472	25.6	0.236
Statin	-317.5	0.003*	-176.9	0.273
ACE-I / ARB	-107.0	0.255	-58.5	0.552
-blocker	-155.6	0.107	-166.4	0.151
% DS	6.4	0.436	5.7	0.396